Amendments to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (withdrawn) A method for encoding an audio signal comprising the steps of:
receiving the audio signal;
providing a model relating to temporal masking of sound provided to a human ear;
determining a temporal masking index in dependence upon the received audio signal and the model;
determining a masking threshold in dependence upon the temporal masking index using a psychoacoustic model; and,
encoding the audio signal in dependence upon the masking threshold.

2. (withdrawn) A method for encoding an audio signal as defined in claim 1 wherein the temporal masking index is determined using a forward temporal masking function.

3. (withdrawn) A method for encoding an audio signal as defined in claim 2 wherein the temporal masking index is determined using a backward temporal masking function.

4. (withdrawn) A method for encoding an audio signal as defined in claim 3 wherein the temporal masking index is determined on a frame by frame basis for each sample of a frame of the audio signal.

5. (withdrawn) A method for encoding an audio signal as defined in claim 4 wherein the temporal masking index is determined for each sample of a frame based on the samples of the frame, samples of a previous frame, and samples of a following frame.

6. (withdrawn) A method for encoding an audio signal as defined in claim 5 comprising the step of calculating an average energy of the samples.

7. (withdrawn) A method for encoding an audio signal as defined in claim 6 wherein the temporal masking index is determined in time domain.

8. (withdrawn) A method for encoding an audio signal as defined in claim 7 comprising the step of determining a simultaneous masking index.

9. (withdrawn) A method for encoding an audio signal as defined in claim 8 comprising the step of determining a combined masking index by combining the temporal masking index and the simultaneous masking index.

10. (withdrawn) A method for encoding an audio signal as defined in claim 9 wherein the temporal masking index and the simultaneous masking index are combined using a power-law.

11. (withdrawn) A method for encoding an audio signal as defined in claim 10 wherein the steps of
determining a simultaneous masking index and determining a combined masking index are performed in frequency domain.

12. (withdrawn) A method for encoding an audio signal as defined in claim 11 wherein the psychoacoustic model is the MPEG-1 psychoacoustic model 2.

13. (previously presented) A method for encoding an audio signal comprising:
receiving the audio signal;
determining an inharmonicity index in dependence upon the received audio signal;
determining a masking threshold in dependence upon the inharmonicity index using a psychoacoustic model; and,
encoding the audio signal in dependence upon the masking threshold.

14. (previously presented) A method for encoding an audio signal as defined in claim 13 comprising:
decomposing the audio signal using a plurality of bandpass auditory filters, each of the filters producing an output signal;
determining an envelope of each output signal using a Hilbert transform;
determining a pitch value of each envelope using autocorrelation;
determining an average pitch error for each pitch value by comparing the pitch value with the other pitch values;
calculating a pitch variance of the average pitch errors; and,
determining the inharmonicity index as a function of the pitch variance.

15. (original) A method for encoding an audio signal as defined in claim 14 wherein the inharmonicity index covers a range of 10 dB.

16. (original) A method for encoding an audio signal as defined in claim 15 wherein the inharmonicity index for a perfect harmonic signal has a zero value.

17. (original) A method for encoding an audio signal as defined in claim 14 wherein the plurality of bandpass auditory filters comprises a gammatone filterbank.

18. (original) A method for encoding an audio signal as defined in claim 17 wherein a lowest frequency of the gammatone filterbank is chosen such that the auditory filter centered at the lowest frequency passes at least two harmonics.

19. (original) A method for encoding an audio signal as defined in claim 18 wherein the lowest frequency is set to twice the inverse of the median of the pitch values.

20. (original) A method for encoding an audio signal as defined in claim 18 wherein the psychoacoustic model is a MPEG psychoacoustic model.

21. (original) A method for encoding an audio signal as defined in claim 20 wherein a Tone-Masking-Noise Parameter of the MPEG-1 psychoacoustic model 2 is modified using the inharmonicity index.

22. (previously presented) A method for encoding an audio signal as defined in claim 13 comprising:
determining a temporal masking index in dependence upon the received audio signal; and,
determining a masking threshold in dependence upon the inharmonicity index and the temporal masking index using a psychoacoustic model.

23-30 (cancelled)

31. (previously presented) A method for encoding an audio signal comprising:
receiving the audio signal;
determining a masking index in dependence upon human perception of natural characteristics of the audio signal by considering at least a wideband frequency spectrum of the audio signal;
determining a masking threshold in dependence upon the masking index using a psychoacoustic model; and,
encoding the audio signal in dependence upon the masking threshold.

32. (original) A method for encoding an audio signal as defined in claim 31 wherein the wideband frequency spectrum is the complete frequency spectrum of the audio signal.

33. (original) A method for encoding an audio signal as defined in claim 31 wherein the psychoacoustic model is the MPEG-1 psychoacoustic model 2.

34. (original) A method for encoding an audio signal as defined in claim 33 wherein the non-linear masking index is a temporal masking index.

35. (original) A method for encoding an audio signal as defined in claim 33 wherein the non-linear masking index is an inharmonicity index.

36. (new) A method comprising:
receiving an audio signal;
decomposing the audio signal using a plurality of bandpass auditory filters, each of the filters producing an output signal;
determining an envelope of each output signal using a Hilbert transform;
determining a pitch value of each envelope using autocorrelation;
determining an average pitch error for each pitch value by comparing the pitch value with the other pitch values;
calculating a pitch variance of the average pitch errors;
determining the inharmonicity index as a function of the pitch variance;
using the inharmonicity index adjusting a psychoacoustic model;
determining a masking threshold using the adjusted psychoacoustic model; and,
providing the masking threshold.

37. (new) A method as defined in claim 36 comprising:
processing the audio signal in dependence upon the masking threshold.

38. (new) A method as defined in claim 36 wherein the psychoacoustic model is a MPEG psychoacoustic model.

39. (new) A method as defined in claim 38 wherein a Tone-Masking-Noise Parameter of the MPEG-1 psychoacoustic model 2 is modified using the inharmonicity index.

40. (new) A method comprising:
receiving an audio signal;
determining an inharmonicity index in dependence upon the received audio signal;
using the inharmonicity index adjusting a psychoacoustic model;
determining a masking threshold using the adjusted psychoacoustic model; and,

processing the audio signal in dependence upon the masking threshold.

41. (new) A method as defined in claim 40 wherein the psychoacoustic model is a MPEG psychoacoustic model.

42. (new) A method as defined in claim 41 wherein a Tone-Masking-Noise Parameter of the MPEG-1 psychoacoustic model 2 is modified using the inharmonicity index.

43. (new) A method as defined in claim 40 comprising:
determining a temporal masking index in dependence upon the received audio signal; and,
adjusting the psychoacoustic model in dependence using the inharmonicity index and the temporal masking index.